

CLAIMS:

1. A tilt correction method for correcting an  
5 inclination of an object lens relative to an  
information recording medium, comprising the steps  
of:

detecting the inclination of the object lens  
relative to the information recording medium,

10 producing a direct current signal for correcting  
the inclination of the object lens;

superposing an alternating current signal having  
a prescribed signal characteristic onto the direct  
current signal to produce a driving signal; and

15 correcting the inclination of the object lens  
using a driving mechanism operated by the driving  
signal.

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2. The method of claim 1, wherein the alternating  
current signal is produced such that the prescribed  
signal characteristic varies depending on a tilt  
25 correction condition.

5     3. The method of claim 1, further comprising the step  
of:

              stopping the superposition of the alternating  
current signal when the inclination is substantially  
corrected and supplying only the direct current  
10    signal as the driving signal to the driving mechanism.

15    4. The method of claim 1, wherein the alternating  
current signal is produced such that the amplitude of  
the alternating current signal gradually decreases  
during at least a portion of a period for supplying  
the alternating current signal.

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5. The method of claim 1, wherein the alternating  
25    current signal is produced such that the frequency of

the alternating current signal gradually increases during at least a portion of a period for supplying the alternating current signal.

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6. The method of claim 1, wherein the alternating current signal is produced such that the amplitude of  
10 the alternating current signal gradually decreases, while the frequency of the alternating current signal gradually increases, during at least a portion of a period for supplying the alternating current signal.

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7. The method of claim 1, wherein the driving signal is a voltage signal.

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8. The method of claim 1, wherein the inclination of  
25 the object lens is corrected by driving a movable

part that holds the object lens against friction between the movable part and a shaft supporting the movable part.

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9. A tilt driving signal generating circuit for generating a driving signal used to drive a movable  
10. part holding an object lens to correct an inclination of the object lens relative to an information recording medium; comprising:

a first input terminal for receiving a direct current signal representing information about the  
15. inclination of the object lens; and

a superposition unit for superposing an alternating current with a prescribed signal characteristic onto the direct current signal to produce the driving signal.

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10. The driving signal generating circuit of claim 9,  
25 further comprising:

a second input terminal for receiving the alternating current signal.

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11. A tilt correction apparatus for correcting an inclination of an object lens relative to an information recording medium, comprising:

10        a tilt detection unit that detects the inclination of the object lens relative to the information recording medium;

      a first signal generating circuit that produce a direct current signal representing information about  
15        the inclination of the object lens;

      a second signal generating unit that superposes an alternating current signal having a prescribed signal characteristic onto the direct current signal to produce a driving signal; and

20        a driving mechanism that corrects the inclination of the object lens relative to the information recording medium in response to the driving signal.

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12. The tilt correction apparatus of claim 11,  
wherein the second signal generating unit superposes  
the alternating current signal having a variable  
5 signal characteristic onto the direct current signal,  
the signal characteristic varying according to a tilt  
correcting condition.

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13. The tilt correction apparatus of claim 11,  
wherein the second signal generating unit stops  
superposition when the inclination is substantially  
15 corrected, and thereafter outputting only the direct  
current signal to the driving mechanism.

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14. The tilt correction apparatus of claim 12,  
wherein the second signal generating unit superposes  
the alternating current signal having variable  
amplitude that gradually decreases during at least a  
25 portion of the superposing period.

5    15. The tilt correction apparatus of claim 12,  
wherein the second signal generating unit superposes  
the alternating current signal having variable  
frequency that gradually increases during at least a  
portion of the superposing period.

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16. The tilt correction apparatus of claim 12,  
15 wherein the second signal generating unit superposes  
the alternating current signal having variable  
amplitude that gradually decreases during at least a  
portion of the superposing period and variable  
frequency that gradually increases during said  
20 portion of the superposing period.

25    17. The tilt correction apparatus of claim 11,

wherein the driving mechanism rotates a movable part holding the object lens about a shaft against friction between the movable part and the shaft.

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18. An optical disk apparatus for performing at least one of recording, reproducing and erasing operations  
10 with respect to an information recording medium,  
comprising:

- a light source for emitting a light beam;
- an optical system including an object lens for concentrating the light beam onto a recording side of  
15 the information recording medium and for guiding a return light beam reflected from the recording side to a predetermined light receiving position;
- a photodetector positioned at the light receiving position;
- 20 a processing unit that carries out at least one of the recording, reproducing, and erasing operations based on an output signal from the photodetector;
- a tilt detection unit that detects inclination of the object lens relative to the information recording  
25 medium;

- a first signal generating circuit that produces a direct current signal representing information about the inclination of the object lens;
- a second signal generating unit that superposes
- 5 an alternating current signal having a prescribed signal characteristic on the direct current signal to produce a driving signal; and
- a driving mechanism that corrects the inclination of the object lens relative to the information
- 10 recording medium in response to the driving signal.